

**REMARKS**

Claims 1-11 are pending in this application. The Office Action rejects claims 1-2, 5 and 8 under 35 U.S.C. §112, second paragraph; and rejects claims 1-9 under 35 U.S.C. §103(a). By this Amendment, claims 1-2, 5 and 8 are amended; and new claims 10-11 are added. Support for new claims 10-11 may be found in, for example, original claims 2 and 8 respectively. No new matter is added.

**I. Rejections under 35 U.S.C. §112, second paragraph**

Claims 1-2, 5 and 8 are rejected under 35 U.S.C. §112, second paragraph for allegedly being indefinite. By this amendment, claims 1-2, 5 and 8 are amended. Specifically, claim 1 is amended to remove the various instances of "the" in the Markush group; claim 2 is amended to remove the phrases beginning with "namely" and "especially"; claim 5 is amended to remove the phrase "such as"; and claim 8 is amended to remove the phrase beginning with "preferably."

Reconsideration and withdrawal of the rejections are respectfully requested.

**II. Rejection under 35 U.S.C. §103(a)**

Claims 1-9 are rejected under 35 U.S.C. §103(a) as having been obvious over Robert et al (WO 00288835) in view of Binder et al. (U.S. Patent No. 6,287,627) and Monsanto (British Patent No. 1,156,010). Applicants respectfully traverse the rejection.

By this Amendment, claim 1 is amended to recite that the carrier material is selected from the group consisting of natural clays, silicates, zeolithes and porous silica.

Applicants respectfully submit that the applied references do not teach or suggest all the features of claim 1. Specifically, the applied references at least fail to teach or suggest that the feed supplement is in a solid form, that the methionine derivative accounts for at least 20% and up to 70% by weight of the feed supplement, and that the carrier material is selected from the group consisting of natural clays, silicates, zeolithes and porous silica.

Instead, Roberts teaches a feed supplement in solid form (page 8, line 10-15) wherein the methionine derivative comprises 3% by weight of the supplement (page 20, line 22). Roberts does not teach or suggest increasing the amount of this component - by over six times - to be an amount of from 20% to 70%. Furthermore, Roberts also fails to teach or suggest that the carrier material is selected from the group consisting of natural clays, silicates, zeolithes and porous silica. Instead, Roberts teaches the use of soya cake.

Similarly, Binder teaches a feed supplement in solid form (column 2, line 44) wherein methionine comprises 90% to 99.9% by weight of the feed supplement (column 4, line 16). Furthermore, Binder teaches away from any other methionine range, such as the presently claimed 20% to 70%, where it states that the methionine preferably comprises 95% to 99.9% by weight (column 4, line 17). Additionally, Binder does not teach a methionine *derivative*, like the presently claimed esters of 2-hydroxy-4-(methylthio) butanoic acid, only a methionine *salt* (column 2, line 49).

Monsanto teaches a feed supplement in solid form (page 1, line 7) wherein methionine hydroxyl analogues (page 1, line 42) can be combined with inert fillers such as clays, silica, vermiculate and bentonite (page 14, line 40). However, Monsanto does not teach or suggest that the methionine derivative accounts for at least 20% and up to 70% by weight of the feed supplement; nor does Monsanto teach or suggest that the methionine derivative is the presently claimed esters of 2-hydroxy-4-(methylthio) butanoic acid. Furthermore, Monsanto teaches away from the presently claimed invention because the very purpose of Monsanto is to enable the biologically active substance to bypass the rumen and gastric medium and pass into the intestine (page 2, lines 18-19), while the presently claimed invention specifically delivers methionine in a short period of time (present specification at page 2, line 1).

Finally, Bevans et al (U.S. Patent No. 6,403,143) is also applied for its teaching that methylthiobutanoic acid can be incorporated into a feed supplement having a dry form

(column 2, line 41) with a silica-based carrier (column 2, line 42). However, Bevans specifically teaches away from this combination by severely criticizing its "limited success" (column 2, line 44). Furthermore, Bevans does not teach or suggest that the methionine derivative is the presently claimed esters of 2-hydroxy-4-(methylthio) butanoic acid, nor does Bevans teach including any methionine derivative in an amount from 20% to 70% by weight in the feed supplement.

In light of the above applied references, the Office Action states that "it would have been obvious to make a product containing a methionine derivative in particular amounts on an inorganic substance." Applicants respectfully submit that this statement was improperly made only in hindsight, using the presently claimed invention as a roadmap to arrive at an assumption that is not supported by the applied references.

The presently claimed invention provides a feed supplement in a solid form that provides methionine to the bloodstream of a ruminant animal in a short period of time (present specification page 2, line 1) and in increased amounts (present specification page 9, lines 3-6) over known methionine containing feed supplements. That a feed supplement *in solid form* was found to deliver a *greater* amount of methionine to the bloodstream of a ruminant animal was a highly unexpected result because, as is generally known in the art, absorption of any material across a membrane (such as here, methionine across the rumen wall) generally occurs more quickly, and therefore to a greater amount for any given set period of time, when the material is in solution. Therefore, the presently claimed invention accomplishes this goal *at least* through the presently claimed features of infusing liquid esters of 2-hydroxy-4-(methylthio) butanoic acid into a porous carrier material consisting of natural clays, silicates, zeolithes and porous silica in an amount of between 20 and 70% by weight.

The above features are clearly not taught or suggested by the applied references, alone or in combination. Specifically, Roberts teaches only a much lower weight amount of the

methionine derivative, and therefore cannot deliver the increased amount to the bloodstream of the ruminant animal. Binder teaches a feed supplement that comprises 90% to 99.9% of a methionine salt, but this is clearly a very different type of feed supplement system from either Roberts or the claimed invention because it is impossible for a solid feed supplement to comprise 90% by weight *liquid* esters of 2-hydroxy-4-(methylthio) butanoic acid *and still remain a solid*. Therefore the teachings of Binder as to the weight amount cannot be applied to the presently claimed system. Finally, Monsanto and Bevans each teach away from the presently claimed invention as discussed above. Thus, the combination of Roberts with Binder, Monsanto or Bevans is improper and would not have rendered the presently claimed invention obvious.

Furthermore, the unexpected results clearly shows that the features of the presently claimed invention do not merely function as a person having ordinary skill in the art would have expected. A person having ordinary skill in the art would not have combined the disparate and contradictory teachings of the applied references in the expectation of achieving the presently claimed invention.

Therefore, it would not have been obvious to a person having ordinary skill in the art to modify the teachings of Roberts with the teachings of Binder, Monsanto or Bevans in order to practice the presently claimed invention. Accordingly, independent claim 1 is patentable over the applied references for at least the reasons discussed above, and dependent claims 2-9 are patentable for at least the reason that independent claims 1 is patentable.

Reconsideration and withdrawal of the rejections are respectfully requested.

### **III. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:  
Petition for Extension of Time

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